

**Bonneville Power Administration
Fish and Wildlife Program FY99 Proposal**

Section 1. General administrative information

Captive Broodstock Artificial Propagation

Bonneville project number, if an ongoing project 9801006

Business name of agency, institution or organization requesting funding
Nez Perce Tribe Department of Fisheries Resources Management

Business acronym (if appropriate) NPT

Proposal contact person or principal investigator:

Name Paul A. Kucera

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Email address paulk@nezperce.org

Subcontractors.

Organization	Mailing Address	City, ST Zip	Contact Name
ODFW		LaGrande, OR	Richard Carmichael

NPPC Program Measure Number(s) which this project addresses.

7.4D

NMFS Biological Opinion Number(s) which this project addresses.

ESA Section 10 Permit

Other planning document references.

Captive broodstock programs for Grande Ronde River chinook populations were identified as a high priority for hatchery intervention in the NMFS (1995) draft recovery plan.

Subbasin.Grande Ronde River (Lostine River)

Short description.

The Captive Broodstock Artificial Propagation project collects juvenile chinook from streams, rears them in captivity to adults, fertilizes gametes and rears fish to smolt size (acclimated smolt released) within a hatchery program in an attempt to return a threshold number of spawning adults.

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
*	Anadromous fish		Construction		Watershed
	Resident fish		O & M	*	Biodiversity/genetics
	Wildlife	X	Production	+	Population dynamics
	Oceans/estuaries		Research		Ecosystems
	Climate	+	Monitoring/eval.		Flow/survival
	Other	+	Resource mgmt		Fish disease
			Planning/admin.	*	Supplementation
			Enforcement		Wildlife habitat en-
			Acquisitions		hancement/restoration

Other keywords.Captive, Broodstock, supplementation

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship
9604400	Grande Ronde Basin Spring Chinook Captive Broodstock Program	Depends on project 9604400 for rearing chinook captured from the Lostine River, Catherine Creek and Upper Grande Ronde River from parr to smolt at Lookingglass Hatchery and smolt to adult at Bonneville Hatchery (freshwater strategy), and Lostine River weir and adult trap operations.
9606700	Manchester Captive Brood O&M	Depends on project 9606700 to rear smolt to adult (saltwater strategy).
9204000	Redfish Lake Sockeye Salmon Captive Broodstock	Sockeye salmon captive broodstock rearing (NMFS).
9107200	Redfish Lake Sockeye Captive	Sockeye salmon captive broodstock

		rearing (IDFG).
9305600	Assessment of Captive Broodstock Technology	NMFS assessment of captive broodstock technology.
9703800	Listed Stock Chinook Salmon Gamete Preservation	Cyropreserves semen for use in supplementation program to enhance genetic diversity of captive bred population
LSRCP Reimb. Prog.	Lower Snake River Comp. Plan Hatchery Production Program	Depends on LSRCP for rearing chinook captured from the Lostine River, Catherine Creek and Upper Grande Ronde River from parr to smolt at Lookingglass Hatchery.

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Coordinate the Captive Broodstock Artificial Propagation project with state and federal management agencies in the Snake River basin.	A	Coordinate all aspects of the Lostine River chinook captive broodstock project planning, implementation and monitoring and evaluation with ODFW.
		B	Attend TOT and CONSPOT meetings to coordinate and integrate the Lostine River chinook captive broodstock project information for the Nez Perce Tribe.
		C	Coordinate with ongoing captive broodstock program activities conducted by other agencies.
2.1	Monitor and evaluate Lostine River chinook parr at Lookingglass Fish Hatchery (LFH) with ODFW.	A	Collect chinook parr from the Lostine River during July and August. Collect biological information of length, weight and general fish condition from a sample of fish at collection.
		B	Assist in loading and transport of juvenile chinook to LFH and determine the mortality rate of juvenile chinook collected and transported to LFH and collect

			information on observed mortalities.
		C	Assist in PIT tagging and/or visual implant tagging all juvenile Lostine River chinook in LFH.
		D	Collect biological information of fork length, weight and general fish condition from a sample of fish at LFH at regular periodic intervals and assess growth profiles and condition factors of Lostine River chinook captive broodstock at LFH.
		E	Determine survival rate of juvenile fish in LFH from collection to transport off-station to the Manchester laboratory and Bonneville Hatchery.
		F	Assist in salinity tolerance tests to determine when captive brood fish are ready for transport to the Manchester laboratory for saltwater rearing.
		G	Assist in transport of fish to Bonneville Hatchery and to the Manchester laboratory and determine the mortality rate of fish transported to Bonneville Hatchery and Manchester laboratory and collect information on observed mortalities.
		H	Coordinate and assist in computer database management of all monitoring information collected on Lostine River chinook captive broodstock at LFH.
2.2	Monitor and evaluate Lostine River chinook captive broodstock reared at Bonneville Hatchery and at the Manchester Laboratory.	A	Tag fish with visual implant (VI) tags and measure fork length and weight of a sample of the fish.
		B	Measure fork length and weight of a sample of fish when any rearing parameters change and assess

			growth profiles of Lostine River chinook captive broodstock at Manchester laboratory and at Bonneville Hatchery.
		C	Determine survival rates of Lostine River chinook captive broodstock under saltwater rearing (ML) and freshwater (BH) rearing strategies.
		D	Determine maturation rates, ages II through V, of Lostine River chinook captive broodstock under saltwater rearing (ML) and freshwater (BH) rearing strategies.
		E	Assist in spawning freshwater reared and saltwater reared chinook captive broodstock adults at BH if needed.
		F	Collect fork length and weight information on all spawned fish and compare the age and size at maturity of adults that are reared in freshwater versus saltwater.
		G	Determine and compare the ovum diameter and fecundity of females reared in freshwater versus saltwater rearing strategies.
		H	Determine and compare fertilization rates for all spawned females in freshwater reared and saltwater rearing strategies.
		I	Determine and compare the timing of spawning for freshwater reared and saltwater reared captive adults.
3	Monitor the abundance and timing of migration of adult chinook salmon into the Lostine River.	A	Assist in the installation of the adult fish weir and trapping structure on the Lostine River as soon as water discharge and velocity criteria allow.
		B	Assist in trap operation and collection of information on adult salmon as needed.
		C	Coordinate and gather information

			to determine the abundance of adult salmon and timing of spawner migration annually into the Lostine River.
		D	Compare the adult spawner migration into Lostine River with stream discharge and water temperature and examine correlations between these variables over time.
		E	Assist with annual chinook salmon spawning ground surveys to collect adult size and age composition from carcasses sampled on the Lostine River.
		F	Assist in removal of the fish weir and trap by mid September or after the adult spawner migration is finished.
4	Annual Report Preparation.	A	Prepare and provide annual reports cooperatively with ODFW summarizing all activities associated with the Lostine River chinook salmon captive broodstock project.

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	10/1996	ongoing	10
2.1	04/1997	ongoing	35
2.2	04/1997	ongoing	35
3	04/1997	ongoing	10
4	04/1997	ongoing	10

Schedule constraints.

Annual abundance of spawning adults and juvenile chinook salmon in the Lostine River. Hatchery catastrophe; total failure of the captive broodstock program; switch to a conventional hatchery program; decision of management of the adult trapping and smolt acclimation facilities.

Completion date.

Anticipated to continue through at least 2015.

Section 5. Budget

FY99 budget by line item

Item	Note	FY99
Personnel		58,454
Fringe benefits		15,198
Supplies, materials, non-expendable property		5,196
Operations & maintenance		11,821
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		
PIT tags	# of tags:	
Travel		7,066
Indirect costs		28,539
Subcontracts		
Other		
TOTAL		126,274

Outyear costs

Outyear costs	FY2000	FY01	FY02	FY03
Total budget	134,000	137,000	140,000	143,000
O&M as % of total	100	100	100	100

Section 6. Abstract

The Lostine River chinook salmon population has declined from an estimated 893 redds in 1957 to 11 redds in 1995 and the population now exists below a threshold number of spawning adults (150). A captive broodstock program was initiated to attempt to maximize the species reproductive potential and to preserve the population through use of acclimated smolt releases to return a threshold number of spawning chinook salmon adults to the Lostine River.

Project goals are to: 1) prevent extirpation of the Lostine River native chinook salmon population, 2) preserve and enhance the Lostine River chinook salmon population through implementation and use of the captive broodstock program, 3) maintain genetic diversity in the artificially propagated captive broodstock chinook population, 4) maintain genetic diversity in the natural population of salmon in the Lostine River. This program plans to rear and release 150,000 acclimated smolts in an attempt to return at least 150 spawning adults to the Lostine River.

Section 7. Project description

a. Technical and/or scientific background.

The Lostine River chinook salmon population has declined from an estimated 893 redds in 1957 to 11 redds in 1995. Significant decline in population numbers has occurred over the past four decades and the population now exists below a threshold number of spawning adults (150). The reduction of spawning escapements below this threshold indicates a higher and unacceptable demographic risk to this population. A captive broodstock program was initiated to attempt to maximize the species reproductive potential and to preserve the population through use of acclimated smolt releases to return a threshold number of spawning chinook salmon adults to the Lostine River. A conventional hatchery program may also be implemented if adult return numbers warrant.

The Captive Broodstock Artificial Propagation chinook project in the Grande Ronde River is a high priority project recognized by state, federal and Tribal representatives through the Columbia Basin Fish and Wildlife Authority (CBFWA). This project has been coordinated with the Oregon Department of Fish and Wildlife (ODFW), the U.S. Fish and Wildlife Service, and National Marine Fisheries Service (NMFS). Project coordination with NMFS has resulted in sharing of NMFS facilities at the Manchester laboratory and in ODFW procuring a Section 10 permit to conduct chinook salmon captive broodstock enhancement activities in the Grande Ronde River. The draft NMFS recovery plan, under the Endangered Species Act, acknowledges the use of captive broodstock programs to prevent population extinction and to supplement and enhance natural chinook populations.

b. Proposal objectives.

OBJECTIVE 1. Coordinate the Captive Broodstock Artificial Propagation project with state and federal management agencies in the Snake River basin.

OBJECTIVE 2. Monitor and evaluate Lostine River chinook parr with ODFW.

Subobjective 2.1. Monitor and evaluate Lostine River chinook parr at Lookingglass Fish Hatchery (LFH) with ODFW.

Subobjective 2.2. Monitor and evaluate Lostine River chinook captive broodstock reared at Bonneville Hatchery and at the Manchester Laboratory.

OBJECTIVE 3. Monitor the abundance and timing of migration of adult chinook salmon into the Lostine River. Measurable.

OBJECTIVE 4. Annual Report Preparation.

Overall Project Goal: This program plans to rear and release 150,000 acclimated smolts in an attempt to return at least 150 spawning adults to the Lostine River. Measurable.

Maintain genetic diversity in the artificially propagated population and keep similar to the natural population. Measurable.

c. Rationale and significance to Regional Programs.

Northwest Power Planning Council (NPPC) program measure 7.4D addresses captive brood stock studies within the Fish and Wildlife program. It acknowledges that “captive brood stock programs have the potential to rapidly increase adult fish numbers, while retaining genetic diversity of severely depleted wild or naturally spawning stocks of salmon”. The NPPC program measure also states that implementation of captive brood stock programs may be the most effective means of accelerating recovery of severely depleted stocks. NPPC program measure 7.4D.2 directs that the program fund captive brood stock demonstration projects identified under the coordinated habitat and production process. It also advises that adequate evaluation be conducted to understand the fitness of captive brood progeny for supplementation, evaluation of fish husbandry and fish health techniques and development of culture systems that minimize loss of fish.

A similar NPPC Measure (7.3.B2) directs the implementation of high priority supplementation projects which should include..... monitoring and evaluation. The current Captive Broodstock Artificial Propagation project addresses the monitoring and evaluation of the Grande Ronde River chinook captive brood stock program in cooperation with the Oregon Department of Fish and Wildlife.

The Captive Broodstock Artificial Propagation chinook project in the Grande Ronde River is a high priority project recognized by state, federal and Tribal representatives through the Columbia Basin Fish and Wildlife Authority (CBFWA). This project has been coordinated with the Oregon Department of Fish and Wildlife (ODFW), the U.S. Fish and Wildlife Service, and National Marine Fisheries Service (NMFS). Project coordination with NMFS has resulted in sharing of NMFS facilities at the Manchester laboratory and in ODFW procuring a Section 10 permit to conduct chinook salmon captive broodstock enhancement activities in the Grande Ronde River. The draft NMFS recovery plan, under the Endangered Species Act, acknowledges the use of captive broodstock programs to prevent population extinction and to supplement and enhance natural chinook populations.

We acknowledge the many uncertainties that exist when employing an experimental chinook captive broodstock program in the Snake River basin. Knowledge gained on this project will assist other agencies who may desire to implement this type of program with other severely depressed runs of spring and summer chinook salmon. We also acknowledge that a number of salmon populations in the Snake River basin are at abundance levels below that which prompted implementation of a captive broodstock program in the Grande Ronde River.

d. Project history

The Captive Broodstock Artificial Propagation project is a high priority Tribal supplementation project that was recommended in 1994 by the Nez Perce Tribe as either a captive broodstock or a conventional hatchery supplementation project. A conventional hatchery approach or captive broodstock program are both possibilities to preserve and recover chinook salmon in the Lostine River. The Tribe has worked cooperatively with the ODFW, USFWS in the planning and development of a Section 10 permit for collection of captive broodstock juvenile chinook salmon from the Lostine River in 1995. We have further participated in CONSPOT meetings and a captive broodstock management plan in 1996 which outlines the program approach.

Chinook captive broodstock program activities were initiated in 1995 with the collection of juvenile chinook salmon from the Lostine River, Catherine Creek and upper Grande Ronde River. Fish were reared at Lookingglass Fish Hatchery until the smolt stage and then were transferred to temporary facilities at Bonneville Hatchery and to the Manchester laboratory. This allowed the ability to evaluate freshwater and saltwater captive broodstock rearing strategies. Chinook salmon parr were also collected in 1996 from the Lostine River and Catherine Creek and in 1997 juvenile chinook were collected from all three streams. The NPT was funded for monitoring and evaluation in 1997 by the USFWS through the LSRCP and for \$97,211 in 1998 directly through BPA. Participation by the Tribe in 1999 and beyond will require funds for cooperative planning, management coordination, implementation and monitoring and evaluation of the Lostine River captive broodstock program.

Management implications include that implementation of this project does have the potential to preserve listed chinook salmon populations and move toward recovery given the uncertainty of captive broodstock technology. If successful it will provide time to address factors that limit recovery, restoration and mitigation of Pacific salmon in the Snake River basin.

e. Methods.

OBJECTIVE 1. Coordinate the Captive Broodstock Artificial Propagation project with state and federal management agencies in the Snake River basin.

Approach:

The Nez Perce Tribe has participated in the Conservation Planning Oversight Team (CONSPOT) and Integrated Team (IT) planning process with the Oregon Department of Fish and Wildlife and the U.S. Fish and Wildlife Service in the development of the Lostine River captive broodstock plan and Section 10 permit application under the Endangered Species Act (ESA). As a salmon manager, the Tribe is interested in coordinating with ODFW in the successful development and monitoring of the experimental captive broodstock program. The Tribe believes that close coordination in the monitoring and evaluation of this captive broodstock project should lead us to an

understanding of the effectiveness of this approach in threatened and endangered species preservation and recovery under the ESA.

Task 1.1 Coordinate all aspects of the Lostine River chinook captive broodstock project planning, implementation and monitoring and evaluation with ODFW.

Task 1.2 Attend TOT meetings to coordinate and integrate the Lostine River chinook captive broodstock project information for the Nez Perce Tribe.

Task 1.3 Coordinate with ongoing captive broodstock program activities conducted by other agencies.

OBJECTIVE 2. Monitor and evaluate Lostine River chinook parr with ODFW.

Subobjective 2.1. Monitor and evaluate Lostine River chinook parr at Lookingglass Fish Hatchery (LFH) with ODFW.

Approach:

The captive broodstock management plan, which the Tribe assisted in development of, contains proposed monitoring and evaluation (M&E) of the chinook captive broodstock program throughout all phases of its implementation. The Tribe did not received sufficient funding to participate in the captive broodstock program until 1998. Since the initiation of the captive broodstock program in 1995 there have been adjustments to the M&E plan and development of a technical oversight team (TOT) that meets on a regular basis to discuss program effectiveness, problems encountered and to discuss necessary management changes. The following tasks would be conducted to evaluate natural Lostine River chinook which are reared at LFH until smolt size and before transport to the Manchester laboratory (ML) and Bonneville Hatchery (BH) for rearing to adult size. Tribal evaluation staff would coordinate closely with ODFW in the ongoing evaluation of natural Lostine River chinook which are reared at LFH. ODFW staff will provide all fish culture, fish production and fish pathology evaluation.

Task 2.1.1 Collect chinook parr from the Lostine River during July and August.

Task 2.1.2 Collect biological information of length, weight and general fish condition from a sample of fish at collection.

Task 2.1.3 - Assist in loading and transport of juvenile chinook to LFH.

Task 2.1.4 - Determine the mortality rate of juvenile chinook collected and transported to LFH and collect information on observed mortalities.

Task 2.1.5 - Assist in PIT tagging and/or visual implant tagging all juvenile Lostine River chinook in LFH.

Task 2.1.6 - Collect biological information of fork length, weight and general fish condition from a sample of fish at LFH at regular periodic intervals.

Task 2.1.7 - Assess growth profiles and condition factors of Lostine River chinook captive broodstock at LFH.

Task 2.1.8 - Determine survival rate of juvenile fish in LFH from collection to transport off-station to the Manchester laboratory and Bonneville Hatchery.

Task 2.1.9 - Assist in salinity tolerance tests to determine when captive brood fish are ready for transport to the Manchester laboratory for saltwater rearing.

Task 2.1.10 - Assist in transport of fish to Bonneville Hatchery and to the Manchester laboratory.

Task 2.1.11 - Determine the mortality rate of fish transported to Bonneville Hatchery and Manchester laboratory and collect information on observed mortalities.

Task 2.1.12 - Coordinate and assist in computer database management of all monitoring information collected on Lostine River chinook captive broodstock at LFH.

Subobjective 2.2. Monitor and evaluate Lostine River chinook captive broodstock reared at Bonneville Hatchery and at the Manchester Laboratory.

Approach:

Sometime before or during the smoltification process, chinook at LFH are transported to either the Bonneville Hatchery (freshwater rearing) or to the Manchester laboratory (saltwater rearing). Evaluation of captive brood post-smolts would occur for the groups reared in freshwater and saltwater rearing strategies until the fish matured at age II (precocial males), III, IV or V. Evaluation of fish during post-smolt growth periods would be minimized to avoid disturbances to the captive brood fish. Assistance will be provided and closely coordinated with ODFW for VI tagging, analysis of mortalities, spawning of fish, collection of information from spawned adults and collection of cryopreservation samples. ODFW staff will provide all fish culture, fish production and fish pathology evaluation.

Task 2.2.1 - Tag fish with visual implant (VI) tags and measure fork length and weight of a sample of the fish.

Task 2.2.2 - Measure fork length and weight of a sample of fish when any rearing parameters change.

Task 2.2.3 - Assess growth profiles of Lostine River chinook captive broodstock at Manchester laboratory and at Bonneville Hatchery.

Task 2.2.4 - Determine survival rates of Lostine River chinook captive broodstock under saltwater rearing (ML) and freshwater (BH) rearing strategies.

Task 2.2.5 - Determine maturation rates, ages II through V, of Lostine River chinook captive broodstock under saltwater rearing (ML) and freshwater (BH) rearing strategies.

Task 2.2.6 - Assist in spawning freshwater reared and saltwater reared chinook captive broodstock adults at BH if needed.

Task 2.2.7 - Collect fork length and weight information on all spawned fish.

Task 2.2.8 - Compare the age and size at maturity of adults that are reared in freshwater versus saltwater.

Task 2.2.9 - Determine and compare the ovum diameter and fecundity of females reared in freshwater versus saltwater rearing strategies.

Task 2.2.10 - Determine and compare fertilization rates for all spawned females in freshwater reared and saltwater rearing strategies.

Task 2.2.11 - Determine and compare the timing of spawning for freshwater reared and saltwater reared captive adults.

OBJECTIVE 3. Monitor the abundance and timing of migration of adult chinook salmon into the Lostine River.

Approach:

An adult chinook salmon fish weir and trap are planned for operation in the Lostine River in 1998 as part of a separate project to trap and spawn adults and develop a conventional hatchery smolt production program. Information collected from this facility will assist in developing baseline information on the abundance and timing of migration of adult salmon into the Lostine River for comparison with captive brood returning adults in the future. Information on adult size and age composition of the run would continue to be obtained from salmon carcasses collected on the spawning grounds. Tribal evaluation staff would assist this project as needed during weir installation, operation including data collection on adult salmon and removal.

Task 3.1 - Assist in the installation of the adult fish weir and trapping structure on the Lostine River as soon as water discharge and velocity criteria allow.

Task 3.2 - Assist in trap operation and collection of information on adult salmon as needed.

Task 3.3 - Coordinate and gather information collected on abundance and timing of the adult salmon spawner migration into the Lostine River.

Task 3.4 - Determine the abundance of adult salmon and timing of spawner migration annually into the Lostine River.

Task 3.5 - Compare the adult spawner migration into Lostine River with stream discharge and water temperature and examine correlations between these variables over time.

Task 3.6 - Assist with annual chinook salmon spawning ground surveys to collect adult size and age composition from carcasses sampled on the Lostine River.

Task 3.7 - Assist in removal of the fish weir and trap by mid September or after the adult spawner migration is finished.

OBJECTIVE 4. Annual Report Preparation.

Task 4.1 Prepare and provide annual reports cooperatively with ODFW summarizing all activities associated with the Lostine River chinook salmon captive broodstock project.

The critical assumption of this project is that limiting factors affecting survival of Snake River chinook salmon would be addressed in the near future. Since this is not a research oriented project, no hypotheses are tested. This program plans to rear and release 150,000 acclimated smolts in an attempt to return at least 150 spawning adults to the Lostine River.

We acknowledge that captive broodstock technology is unproven and that uncertainty exists in terms of its application to preserve threatened chinook salmon populations. Since this program is experimental in nature it will attempt to answer many of these uncertainties as the project progresses. Some of the uncertainties include: maturation of adults at the correct time and age; quality of adult gametes; potential domestication effects; genetic effect to both the artificially propagated population and the wild population once captive brood adults return to spawn; and fitness of the captive brood adults.

f. Facilities and equipment.

Type here (The NPT will utilize administrative office space in our Enterprise, Oregon, office. A fenced compound is available for parking of vehicles and storage of equipment. provide answers in paragraph form)

This project is operated out the Nez Perce Tribe's Enterprise Field Office. Facilities there are adequate for administration and personnel needs. The project leases a GSA vehicle suitable for project activities.

g. References.

Northwest Power Planning Council. 1994. Columbia River Basin Fish and Wildlife Program.

Dehart, D. 1996. Application for a permit for scientific purposes and to enhance the propagation or survival of endangered Grande Ronde River basin spring chinook salmon, *Oncorhynchus tshawytscha*, under the Endangered Species Act. Permit application submission to National Marine Fisheries Service, ODFW, Portland, OR.

Flagg, T.A. and C.V.W. Mahnaken. 1995. An assessment of the status of captive broodstock technology for Pacific salmon. Project report to the Bonneville Power Administration. CZES Division, NMFS, Seattle, WA.

Section 8. Relationships to other projects

The Tribe has worked cooperatively with the ODFW, USFWS in the planning and development of a Section 10 permit for collection of captive broodstock juvenile chinook salmon from the Lostine River in 1995. We have further participated in CONSPOT meetings and a captive broodstock management plan in 1996 which outlines the program approach.

Chinook captive broodstock program activities were initiated in 1995 with the cooperative collection of juvenile chinook salmon from the Lostine River, Catherine Creek and upper Grande Ronde River. Cooperative efforts with ODFW, LSRCP, and NMFS are required for fish reared at Lookingglass Fish Hatchery until the smolt stage and transferred to facilities at Bonneville Hatchery and to the Manchester laboratory. Experienced personnel from research, hatchery production and fish pathology form the team that is evaluating chinook captive broodstock effectiveness. In addition, we cooperate with ODFW for operation of the weir and adult trap facilities on the Lostine River.

Section 9. Key personnel

Project personnel include: Project Leader 1 FTE; Fisheries Biologist - 0.5 FTE. The NPT is currently recruiting to fill positions on this project. Paul Kucera, Director of Biological Services, is the interim project leader. Jay Hesse is the Fisheries Research Coordinator and will provide technical assistance and coordination to the project.

Jay A. Hesse, Research Coordinator, no ISS funding associated
Nez Perce Tribe Department of Fisheries Resources Management

Education: M.S. in Fisheries, Michigan State University, 1994
B.S. in Fisheries and Wildlife, Michigan State University, 1992

Duties: Technical direction and supervision of fisheries research projects, research coordination, Nez Perce Tribe LSRCP project implementation, report writing, monitoring and evaluation plan and proposal development, tribal fisheries research representation at federal and state meetings, budget preparation, personnel supervision.

Experience: Project Leader, Idaho Salmon Supplementation Study. Nez Perce Tribe. July 1994 - October 1997.

Skills:

Publications: Hesse, J. 1997. A-run steelhead status in tributaries of the lower Clearwater River, Idaho. In Interactions of hatchery and wild steelhead in the Clearwater River of Idaho. 1995 Progress Report, Fisheries Stewardship Project, USFWS Report. November 1997.

Hesse, J.A., P.J. Cleary, and B.D. Arnsberg. 1995. Salmon Supplementation Studies in Idaho Rivers. Annual Report - 1994. U.S. Department of Energy - Bonneville Power Administration. Portland, Oregon.

Hesse, J.A. and B.D. Arnsberg 1994. Salmon Supplementation Studies in Idaho Rivers. Annual Report - 1993. U.S. Department of Energy - Bonneville Power Administration. Portland, Oregon.

Hesse, J.A. 1994. Contribution of hatchery and natural chinook salmon to the eastern Lake Michigan fishery, 1992-1993. Masters Thesis, Michigan State University.

RESUME

Paul A. Kucera

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Lapwai, Idaho 83540
(208) 843-2253, extension #2435

CURRENT POSITION: Director of Biological Services

EDUCATION: Bachelor of Science. 1975.
Utah State University.
Major: Fisheries Management.

Completed MS studies at the University of Idaho 1990
Major: Fisheries Management.

PROFESSIONAL EXPERIENCE:

1991-present Director of Biological Services with the Nez Perce Tribe Department of Fisheries Resources Management. Responsible for technical program direction and administration of the Fisheries Research Division.

1988-1991 Senior Fisheries Biologist with the Nez Perce Tribe Fisheries Department.

1987-1988 Acting Fisheries Program Manager with the Nez Perce Tribe Fisheries Department. Responsible for fisheries program management and direction.

1984-1986 Senior Fisheries Biologist with the Nez Perce Tribe Fisheries Department. Conducted research on juvenile steelhead trout life history characteristics and abundance in relation to physical habitat parameters on five streams.

1982-1983 Project fisheries biologist with the Nez Perce Tribe Fisheries Department. Responsible for conduct of a physical and biological inventory of streams on the reservation proper with emphasis on anadromous salmonids.

1978-1980 Fisheries biologist with the Colville Confederated Tribes Fish and Wildlife Department. Developed fishery management programs for the Colville Tribe on their 1.3 million acre reservation and the 1.7 million acre ceded area.

1975-1978 Fisheries research biologist with W.F. Sigler and Associates, Environmental Consulting Firm. Ecological and fish life history research on 110,000 acre Pyramid Lake, Nevada.

Unique Abilities:

Certified Fisheries Scientist - AFS
Experienced with Endangered Species Act and management of listed fish species.
Experience in program development and procuring project funding.
Research and management experience with resident and anadromous species.
Familiar with Tribal government and management approaches.
Trained in CPR and First Aid.

Publications

Kucera, P.A. and J.L. Kennedy. 1977. Evaluation of a sphere volume method for estimating fish fecundity. *The Progressive Fish Culturist*. 39(3):115-117.

Kucera, P.A. 1978. Reproductive biology of the tui chub, Gila bicolor, in Pyramid Lake, Nevada. *Great Basin Naturalist*. 38(2): 203-207.

Kennedy, J.L. and P.A. Kucera. 1978. The reproductive ecology of the Tahoe sucker, Catostomus tahoensis, in Pyramid Lake, Nevada. *Great Basin Naturalist* 38(2): 181-186.

Vigg, S., P. A. Kucera. 1981. Contributions to the life history of Sacramento perch, Archoplites interruptus, in Pyramid Lake, Nevada. *Great Basin Naturalist* 41(3): 278-289.

Sigler, W.F., W.T. Helm, P. A. Kucera, S. Vigg and G. W. Workman. 1983. Life history of the Lahontan cutthroat trout, Salmo clarki henshawi, in Pyramid Lake, Nevada. *Great Basin Naturalist* 43(1): 1-29.

Kucera, P.A., D.L. Koch and G.F. Marco. 1985. Introductions of Lahontan cutthroat trout into Omak Lake, Washington. *North Amer. Jnl. Of Fish. Mngt.* 5(2): 296-301.

Johnson, J.H. and P.A. Kucera. 1985. Summer-autumn habitat utilization of subyearling steelhead trout in tributaries of the Clearwater River, Idaho. *Can. Jnl. Zool.* Vol, 63:2283-2290.

Kucera, P.A. 1989. Nez Perce Tribal review of the Imnaha River Lower Snake River Compensation Plan. AFF1/LSR-89-08, Tech. Rep. 89-7. Annual project report to the U.S. Fish and Wildlife Service. Nez Perce Tribe Fisheries Dept., Lapwai, ID. 49 pp.

Kucera, P.A. and M.L. Blenden. 1996. Summary report of 1996 project activities relating to endangered chinook salmon populations listed under the Endangered Species Act. Nez Perce Tribe Department of Fisheries Resources Management, Lapwai, Idaho. 60 pp.

Section 10. Information/technology transfer

Cooperative annual reports with ODFW will be prepared and provided which summarize all activities associated with the Lostine River chinook salmon captive broodstock

project. Project presentations are provided as requested by BPA. Presentations to state chapter AFS meetings are mad as time allows.